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MARCH  
1949

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## EDITORIAL



## TECHNICAL PROGRESS.

## N.B.F.M.

Federal Executive has, on your behalf, sought from Chief Inspector (Wireless) permission for Australian Amateurs to use Narrow Band Frequency Modulation on 3.5 and 27 Megacycle Bands. We feel that the time has arrived for amateur exploitation of the new field opened up by this technique, particularly on 3.5 M/c band, where B.C.L. debars many amateurs from making full use thereof. It is hoped that when this privilege is granted, the 3.5 M/c band will be completely reactivated and re-explored, for herein lies our most useful medium for maintaining close contact between Country and City Members.

N.B.F.M. standards recommended by the Federal Executive were outlined in the editorial for October, 1947.

## F.I.A.T.S.

The Federal Ionospheric and Tropospheric Sub-Committee has, with the aid of Dr. A. L. Green and his staff at A.I.P.S. — to whom we are extremely grateful — succeeded in providing for the magazine each month, a series of very simple charts whereby the Amateur Operator may spend every minute on the air in sure contact with the desired Zone, instead of sitting wondering why the band is dead. The Sub-committee is now investigating the possibility of making these charts useful for our New Zealand friends. The next step

will be, with the co-operation of Divisional Councils, to establish Liaison Officers in each State who will correlate for official broadcasts, Short Term Corrections and Interstate Propagation Forecasts.

## 50 M/c BAND.

The advances made in Equipment, Aerial Systems and increasing knowledge of propagation characteristics has resulted in consistent contacts over distances which were once regarded as a rare accomplishment. Undoubtedly when F.I.A.T.S. can get into action on Tropospheric Forecasts present day records will be eclipsed with ease. Naturally we will always be indebted to sporadic E. and T.I. for abnormal ranges; but our Tropospheric Forecasts will enable us to take full advantage of the vagaries of nature.

## 144 M/c BAND.

From a rickety start with the inevitable "Super-Regen" and "Wobulated Oscillator," we have in quick time reached the dizzy heights of "Double and Triple Conversion Super-Hets," and Multi-Stage Crystal Controlled Transmitters," with it we have developed a very blasé attitude and now regard this band more or less as the "Local Telephone Service"—In other words, it's time for the pioneers to move further afield to pastures new — So, why not follow the lead of those hardy members who are already blazing the trail on 576 M/cs.

—G.G.

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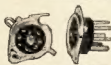
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# Notes On Double Conversion Receiver Design

BY D. R. AYRE,\* VK3KP

C. C. Waring's article on a double conversion receiver ("A.R.," June, 1948) should be read by all interested in this type of set. It is a most comprehensive description of a particular receiver, providing ample information on many phases of the design and construction of the type, and is therefore a considerable contribution to the literature relating to double conversion receivers. Little enough has been written about them in the past. The A.R.R.L. Handbook for 1944, for instance, contains a total of 10½ lines on the subject!

Although the writer proposes also to refer to a specific receiver, it is not so much for the purpose of providing a complete description together with constructional details, as to bring out several points of considerable interest and importance in the design of these receivers.

The receiver in question, which has proved most satisfactory at the writer's station, is shown in block diagram form in Fig. 1. It will be seen that the tube line-up is as follows:—

1st r.f.—6AK5  
2nd r.f.—9003  
1st mixer—9001  
1st osc.—9002  
High i.f.—6SK7  
2nd mixer—6L7  
2nd osc.—6J5  
1st low i.f.—6SK7  
2nd low i.f.—6SK7  
Det., a.v.c., 1st audio—6R7  
B.f.o.—6J5  
Shunt noise limiter—6H6  
Output—6K6

The high i.f. is 3830.7 Kc. (for reasons mentioned below), while the low i.f. is 455.0 Kc.

## CHOICE OF INTERMEDIATE FREQUENCIES

It is well known that the primary reason for accepting the complexity of a double conversion receiver is to achieve satisfactory image ratios for the higher frequencies, say from 14 Mc. up, while retaining the desirable selectivity and gain of the conventional i.f. chan-

nel working on 455 Kc., 175 Kc., or even lower. 1600 Kc. is often adopted for the high i.f. This gives a fairly satisfactory image ratio on 28 Mc., as Waring points out, but leaves something to be desired at higher frequencies. True, 1600 Kc. i.f. transformers are available. The writer feels, however, that the slight additional expense involved in procuring special higher frequency transformers is a drop in the bucket when compared with the cost of the complete receiver. Somewhere in the range 3 to 6 Mc. would seem satisfactory, although v.h.f. requirements may warrant going up to 10 Mc. For the low i.f., the writer prefers 455 Kc. in conjunction with a crystal filter. The exact high i.f. chosen—3830.7 Kc.—was finally arrived at for reasons dealt with below.

## SPURIOUS SIGNALS

These are mentioned early in the article because they play a part in the selection of the frequency at which the second (fixed frequency) oscillator is to work, and hence, in the choice of the two intermediate frequencies—particularly the higher.

There are three common forms of spurious signal which can creep into the double conversion receiver (there are others, but they are either rare, or of the type found in a normal single conversion set; in either case, they are not considered here). The three forms are:—

- Harmonics of the second (fixed frequency) oscillator.
- Silent "carriers" caused by interaction between the first and second oscillators.
- Images due to oscillator harmonics.

Type (a) are readily understood. Suppose the second oscillator to be on 4000 Kc. Its harmonics will appear at 8, 12, 16, 20, 24, 28, 32 Mc., etc. They are the hardest of all the spurious signals to eliminate, because they are accepted by the input circuit of the first r.f. stage when it is tuned across them, and this stage is the most sensitive in the set. It is easy enough to suggest adequate decoupling of the second oscillator,

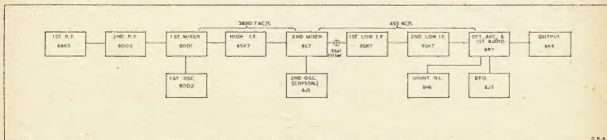
together with liberal shielding. It is, alas, very hard to get enough of either to suppress this type of spurious signal completely.

Unlike Waring, the writer sees little point in general coverage for a receiver of this type, and is interested only in Amateur band reception. One solution, therefore, is to pick a frequency for the second oscillator having harmonics which fall outside any band which it is intended to receive. The other—adopted by the writer—is to select a frequency whose harmonic coincides with the edge of a band, and acts as a marker. The second oscillator used is a low drift crystal type, and owing to the availability of a readily adjusted crystal, 4285.7 Kc. was chosen. The seventh harmonic of this frequency is 29999.9 Kc., which marks the h.f. end of the ten metre band. Other, and better, alternatives will suggest themselves—3500 Kc. for instance, which will mark the i.f. edges of 80, 40, 20, and 10.

Spurious signals of type (b) will surely appear in any but the best designed sets when they are first switched on and given a preliminary line up. They are caused by the fundamentals or harmonics of the two oscillators beating together to produce silent "carriers" which are picked up by the input circuit of the high i.f. stage or (this is less usual) by the input circuit of the first low i.f. stage. They are alarming when first noticed, as they appear closely spaced all over the dial. The reason for their multiplicity lies in the fact that even high order harmonics can be responsible. The writer, at one stage in the development of the receiver referred to, tracked down a few that were coming from harmonics of the order of 40th to 50th.

Fortunately, the input to the i.f. channels—especially the low i.f.—has to be higher than that at the first r.f. stage to produce the same effect. This is all to the good. The solution must be found; it will vary with each receiver and with different set-ups of a given receiver, but basically will comprise complete, elaborate shielding of one or both oscillators, and careful decoupling

(Continued on Page 10)



\* 65 Kenmare Street, North Box Hill, E.12, Victoria.



# What, No Beacons?

BY M. E. COLLETT,\* VK2RU

We are fortunate in Australia to have the use of the Radio Ranges on 33.3 and 33.8 Mc. commonly referred to as beacons; they have proved invaluable, now that we have got the six metre enthusiasts using them to determine whether or not the band is open, and in what direction. Observations would indicate that their normal range is in the vicinity of 50 miles, at ground level, increasing upwards to 200 miles with suitable temperature inversion conditions. At this location, 40 miles north of Sydney, no ranges apart from SY are normally heard. All other ranges are heard here at various times apparently via E layer reflection, except in the case of PH which is also heard via F2 layer reflection as well as E layer (double hop). This was instanced on the 17/1/49 when VK6 and VK5 stations were heard and worked on and around the same time that PH and AD were audible on their respective frequencies. Normally DN and PH are heard during the daylight hours via F2 layer, m.u.f. permitting round the equinoxes.

One point of interest which appears to occur at most openings, is the intensity of the signals from the ranges rises to very high levels, prior to the appearance of signals on 50 Mc., decreasing considerably during the opening and rising again after the band closes, which would appear to indicate that the m.u.f. passes down through the frequency spectrum with the increase in ionisation.

During observation of sporadic E via Radio Ranges, contacts, etc., it appears that the "clouds" travel generally in a northerly direction. This can be observed very effectively early in the DX season when they cover a comparatively small area. For instance, BN has been heard for possibly five minutes, it fades out and shortly afterwards TV appears, as it fades out CS comes in and goes out, later on DN is heard. This performance was repeated on a number of occasions in the evenings in October, 1947. Comparing times and maps gave us approximately 300 m.p.h. This compared favorably with observations on AD to DN fade-out to fade-out during the same month.

1948-49 provided the first double hop contacts via E layer in VK. Multiple hop contacts appear to be indicated as evidenced by reported reception of ZSIET by VK3 and VK6 stations, and VK6s and ZLs calling each other.

The next step in 50 Mc. DX in VK is apparently to work South Africa and South America. Days such as the 5/12/48, 18/12/48, and many others subsequently, when all States and ZL made contacts on and around the same time, appear to indicate that the "sporadic E"—for want of a better term—covers very large areas of the southern hemisphere. Multiple hops under these conditions appear very hopeful though, owing to the shortness of the skip, not particularly reliable.

\* 85 Mann Street, Gosford, N.S.W.

With the end of the DX season approaching, it may be of interest to hold a post mortem and compare them with the previous year, though lack of activity in 1947-48 tends to mar the comparison. In 1947 and 1948 the Radio Ranges became audible with increasing regularity after the beginning of September in each year. Although during the winter months the ranges did come through and the band also opened mainly following the twenty-seven day cycle.

In 1947 the band opened with a bang on the 9/11/47 and remained open until the 15/11/47. It opened again on the 6/12/47 and closed on 3/1/48. That practically finished the season so far as VK2 was concerned, except for a few isolated contacts during the latter part of January.

In 1948, except for an odd contact, the band did not open properly until the 19/11/48, when it got away to a good start after which it remained open to various States until the big day when VK6 came on the msp—3/12/48—so far as VK2 was concerned. After a slight lull it reopened again on the 11/12/48 and it remained so except for an odd day or so up to the time of writing—29/1/49—to all States and New Zealand. During this season ZLs have been worked from VK2 on 31 days. Double-hop contacts and reception reports indicate that the band has been open to VK6 on 12 occasions.

Daily observation has also been undertaken here of the m.u.f. but to date contacts per medium of F2 appear to be somewhat remote. However in March and again in October the m.u.f. did reach 50 Mc. and fading carriers were heard from a northerly direction. It would appear that so far as VK2 is concerned the periods March-April and September-October around 1100 to 1400 hours this coming year would bear watching.

In conclusion the writer would like to thank fellow six metre Hams for their solid co-operation. It was hoped at one stage—records having been kept for two years—to endeavour to line up sporadic E with other natural phenomena as weather, storms, etc., sunspots, conditions on lower frequencies, etc., etc. However conditions this year shattered all previous theories. Contacts were made under all weather conditions from as early as 0800 hours (VK3OD, on the 13/12/48) to 2020 hours (VK4BT, on 27/10/48) and Radio Ranges have been recorded at varying strengths at all hours of the day and night. Sunspot numbers varied from 85 on the 5/12/48—a very good day for DX—to 221 on the 19/12/48, which, apart from very sporadic ZL and Interstate contacts, provided nothing unusual.

As regards the other bands nothing was observed apart from the usual masking effect of sporadic E. Maps and charts on sporadic E observations by the N.P.L. Eng. covering from December 1940 to January 1942 were carefully

studied. These indicated intense activity during summer months, slight peak in mid-winter and fairly regular re-occurrences during other months following 27 day cycle. These charts covered the northern hemisphere and other than the fact that conditions appear to follow very closely the same pattern so far as VK is concerned nothing further was gleaned. However after analysing daily records of Ranges heard during the last two years some interesting features emerge, particularly so when they are correlated with various openings in VK and elsewhere. It would provide a basis for a further article if sufficient interest warrants it.

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# IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS

MARCH, 1949

The accompanying charts have been prepared by the Ionospheric Prediction Service of the Commonwealth Observatory. The first set of the series was published in the November, 1948, issue of this magazine, together with an article explaining the nature of the forecasts and how to use them. Nine of the charts, prefixed by the letter "C" for Canberra, refer to forecasts for the South-Eastern Australian States. The remainder, prefixed by the letter "P" for Perth, are for Western Australia.

The Canberra charts refer to the following world zones:—

Zone	Region	Terminal
1	Western Europe	London
2	Mediterranean	Cairo
3a	N-West America	San Francisco
3a	N-East America	New York
4	Central America	Barbados
5	South Africa	Johannesburg
6	Far East	Manila

The forecasts have actually been prepared for point-to-point circuits between Canberra and the overseas terminals mentioned in the above table. It is, however, to be expected that the charts will provide an approximate indication of ionospheric conditions for all Amateur contacts from South Eastern Australia to the various world zones.

The Perth charts are similar to those based on Canberra, except that the Far East terminal is Shanghai in chart P-Z6. No forecasts are given from Perth to Zones Z2 and Z4 for the current month. Chart P-Z2 would be essentially similar to P-Z1, while chart P-Z4 would be unreliable due to auroral activity in high northern latitudes.

## USE OF CHARTS

All that is necessary in using the charts is to select a time (G.M.T.) during which a specified Amateur band frequency is below the maximum usable frequency (m.u.f.) of the F region of the ionosphere but above the lowest useful frequency (l.u.f.) for the desired contact. In two cases, Zones 1 and 3a, it is necessary to consult both the short-route (s.r.) chart and the following long-route (l.r.) chart.

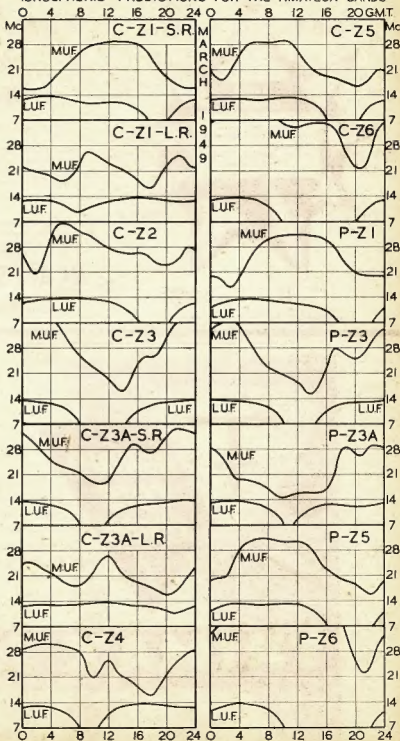
## QUIZ

The Prediction Service welcomes comments on the accuracy of its predictions. In particular, answers to the following questions on the Canberra-San Francisco circuit would be most helpful:—

1. Was there a consistent break in the 28 Mc. band from 0700 to 1900 hours G.M.T.?
2. Was the 14 Mc. band open, but noisy around midnight G.M.T.?
3. Were conditions good on the 14 Mc. band from 0800 to 1900 hours or was there a break in the circuit soon after mid-day G.M.T.?

Answers to the Quiz should be sent to the W.I.A. and should, if possible, refer to consistent results obtained on the majority of days in the month.

# IONOSPHERIC PREDICTIONS FOR THE AMATEUR BANDS



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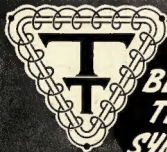
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# Royal Australian Air Force Reserve

The Minister for Air (Mr. Drakeford) has said "The value of reservists can be judged from the fact that the R.A.A.F. Wireless Reserve in 1939 permitted the R.A.A.F. to man vitally important circuits without delay and to carry out a development plan which would have been considerably delayed without the able and loyal aid of the members of the Reserve."

Wing Commander J. Reddip, Director of Telecommunications and Radar, gave a talk at the 1948 Annual Convention of the Wireless Institute of Australia in Melbourne and there has been a press release telling you of the broad plan to include an active radio component in the R.A.A.F. Reserve.

Wing Commander J. Reddip tried to imagine that he is a possible member of the Radio Section of the Reserve and has asked himself some questions, and as it is his job to organise the Reserve, he was able to supply the answers. Here they are:—

## What is the R.A.A.F. Reserve?

The conditions of service in the Royal Australian Air Force Reserve are fully covered in the July 1948 issue of "Amateur Radio," page 14.

The Permanent Air Force Reserve will include a Telecommunications and Radar Section. Reservists in the Telecommunications and Radar Section will be trained to such a standard so that when called up for service, they shall rank and be able to work with members of the Telecommunications and Radar Section of the Permanent Force without further training.

## How will Telecommunications & Radar Section of the Reserve be Organised?

Squadron Leader F. C. Bibby has been appointed as Officer in Charge of the Telecommunications and Radar Section of the R.A.A.F. Reserve. Nearly every radio man who has been in the Active Force knows Squadron Leader Fred Bibby. He will be remembered as a most energetic, go-ahead officer and an active and enthusiastic Amateur. He trained a number of presently serving and ex-Signals officers and airmen. He has been out in the field and served with the U.S. Forces under General Akin. He was well thought of by the Americans and was awarded the American Bronze Star Medal for his work with them. He is now at Air Force Headquarters and is responsible for technical development and the frequency and ionospheric organisation.

The Telecommunications and Radar Section of the Reserve will be organised on an Area basis under the control of Air Force Headquarters. In the initial stages, the areas will be as follows:—

Southern—Victoria, South Australia, and Tasmania.  
Eastern—New South Wales and Brisbane area.

North Eastern—Northern Queensland.  
Western—Western Australia.

North Western—Northern Territory.  
Southern will be under the control of the Chief Signals Officer, Southern Area Hqrs. (Address: Albert Park Barracks, Melbourne.)

Eastern will be under the control of the Chief Signals Officer, Eastern Area Hqrs. (Address: Albert Park Barracks, Melbourne.)

North Eastern Area will be under the control of the Chief Signals Officer, North Eastern Area Hqrs. (Address: Townsville, Qld.)

Western will be under the control of the Chief Signals Officer, Western Area Hqrs. (Address: Pearce, W.A.)

North Western Area will be under the control of the Chief Signals Officer, Western Area Hqrs. (Address: Darwin, N.T.)

In each area, the Chief Signals Officer will organise the activities of that area in conjunction with a Chief Reservist Officer.

## What Training Will I Get?

In the initial stages, the training of Reservists will take the form of revision of what you had learnt and were engaged upon during service in the 1939-45 War. Following this initial stage, Reservists will be brought up to date with current practices in use in the Active Force.

## How Will I Be Trained?

Training will be carried out along the following lines:—

### (i) Home Training.

(a) For approximately the first 6-9 months, technical data will be supplied to Reservists so that in their spare time they can carry out revision and bring themselves up to the standard they attained whilst members of the Active Force.

(b) Reservists will be sent questionnaires which will require them to do some delving into their text books and notes to find the answers.

### (ii) Lectures.

(a) Periodical lectures will be given at central points to all Reservists. These lectures will cover the whole field of the Active Force Telecommunication and Radar equipments, and where possible future developments and equipment on the design board. Reservists will know what is going on at home and abroad.

### (iii) Practical Work.

(a) It may be possible to organise competitions, particularly in the field of efficiency in v.h.f. link transmission and reception. This will depend on yourselves and every possible assistance will be given.

(b) Organised group visits to R.A.A.F. units will be arranged to enable Reservists to see communica-

tion and radar equipments, and layouts in aircraft, single side band multi-channel equipment and high powered transmitters in transmitting stations, the operation of tape relay message handling, etc.

(c) Personal visits to R.A.A.F. units will be arranged for Reservists on leave at a Capital city or near a R.A.A.F. unit to enable them to work side by side with officers and airmen of the Active Force.

(d) Special arrangements will be made for Reservists visiting their Area Headquarters capital cities to personally present their ideas for improvements and to discuss their problems with Chief Signals Officers, and when visiting Melbourne with officers at Air Force Headquarters.

(e) Arrangements will be made for Reservists to visit factories in or near their district, or when they are on leave and to visit the Royal Australian Air Force Research and Development Unit and aircraft manufacturers.

(f) Working displays of equipment will probably be arranged in the capital cities or nearby Air Force units so that Reservists can spend as much of their spare time as possible to become experienced in the operation and maintenance of service equipment.

## Will I Learn Anything New?

Every effort will be made to advance the technical knowledge of Reservists. The standard required of Reservists will be such that they, when called up for Service, can be absorbed directly into the Telecommunications and Radar Section of the Permanent Air Force.

Reservists will be taught single-side band multi-channel and frequency shift transmissions, and all other aspects of radio teletype transmission, v.h.f. and pulse techniques including relaying radar scope pictures, multi-channel links, aircraft instrument landing systems, such as SCS-51 and G.C.A.

Lectures and demonstrations and technical articles will be given on all the above subjects and others as they come to hand.

The merging of signals and radar commenced after the cessation of hostilities. It will be recalled that there were separate signals and radar organisations during the last War. It was realised that there was a very close relation between the functions of the two organisations and it was decided that they should merge and the resultant product "Radio" would cover all aspects of signals and radar.

All ex-Signals personnel will be trained in radar and all radar personnel will be trained in signals.

## Is There Any Social Side?

All Reserve members will be afforded the facilities of the appropriate

(Continued on Page 10)

# Important Announcement!

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# Eighty Metres And How!

BY J. E. DE CURE,\* VK5KO

A study of the predictions, contained in the various graphs contained in the Radio Propagation Bulletin issued monthly by the Ionospheric Prediction Service of the Commonwealth Observatory, plus the graphs published in "Amateur Radio" in November, 1948, led me to believe that communication with European Amateur Stations should be possible on the 3.5 Mc. (80 metre) band, somewhere between 1800 and 2000 G.M.T.

As I had been subjected to considerable pressure from G6CJ during the past two years to initiate a series of tests on 80, a watch was kept on that band during late October and early November. At first results were not encouraging, but between 1930 and 2000 GMT on 9th November, 1948, the following stations were logged at reasonable strengths. G5RV, SM5TF, G3BRN, and GW3CDP.

Having established that the path was actually a possibility, I contacted G6CJ and arranged week-end schedules between 1800 and 2000 hours G.M.T. each Friday night, commencing on 3rd December, 1948. The first series returned a null return each way but on changing up to 7070 Kc. G6CJ was immediately contacted and further schedules were arranged.

Unfortunately G6CJ was unable to keep this schedule on 10th December, and thus missed the work done on that day. At 1850 G.M.T., European stations began to appear, and after some futile CQs, VK5KO was called by G13ECQ (Antrim, North Ireland) and HB9K in Switzerland on 2440 Kc. at 1920 G.M.T. Reports were exchanged with both these stations, but I was unable to raise any of the other numerous Europeans logged up to 2000 G.M.T. when the band faded out.

A daily schedule was then commenced. G2KO being worked on 11th December but in spite of countless CQs, no other station was raised until 1930 G.M.T. on 16th December, 1948, when G3ACC called and gave an RST 579 report. Margaret, very much alive, proceeded to wake Europe up to the fact that there was a VK on the band, and from then on it has been a matter of one QSO following another.

To condense, 187 Europeans have been contacted up to 20th January, 1949, reports ranging from RST 449 to 580—strengths under 4 are just not good enough to battle with the QRM situation. In addition to the above, ZS1M, FA8BG, and ZC8PM have been worked between 1800 and 2000 G.M.T. Several Ws including W7MVH and JA2KG, and numerous ZLs, have been worked around 1200 hours GMT. Reports from W2QHH in New York City indicate that levels of S7 to 8 are being received at that centre at 1200 G.M.T.

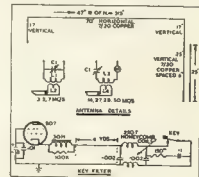
The foregoing has been written in an endeavour to sell 80 metres to the fraternity. It must be admitted that there

Here is the story of the recent regeneration of the 3.5 Mc. band, together with some random ideas on an antenna, which has been moderately successful on the various bands, as well as 3.5 Mc., the band in which the writer is most interested.

is not much wrong with a band that can yield over 200 DX contacts with five continents in a matter of six weeks. There has been a fair amount of discussion here regarding how long these conditions will be maintained. In my opinion, taking a line from previous experience of an almost identical nature on 7 Mc. band in 1930-31, I incline to the view that these contacts should be possible on most days throughout the year, around the local sunrise period—i.e. from about 15 minutes before, until approximately 30 minutes after sunrise—always provided the station you desire to contact is not in a sunlight area. This is of course an extremely broad general statement and would be subject to considerable adjustment, but activity is the only way to prove the point. In any case this band does provide some variety, and we should keep in mind the old axiom "that what you don't use, you will eventually lose." The QRN bogey also appears to be a myth as it drops to very low levels when the DX is coming through.

## DETAILS OF ANTENNA

So much for what you may expect to hear on 80 metres. Many will say, well, the difficulties of arranging an aerial system that is capable of performing with sufficient efficiency to enable this work are insurmountable in the average suburban location. A brief description of the antenna in use at VK5KO will, for that reason, be of



- |    |               |            |           |
|----|---------------|------------|-----------|
| L1 | 3.5 and 7 Mc. | —14 turns, | 31" diam. |
| L2 | 3.5 and 7 Mc. | —3 "       | 34" "     |
| L3 | 14 Mc.        | —2 "       | 28" "     |
| L4 | 14 Mc.        | —2 "       | 34" "     |
| L5 | 14 Mc.        | —2 "       | 34" "     |
| L6 | 14 Mc.        | —2 "       | 34" "     |
| L7 | 14 Mc.        | —2 "       | 34" "     |
| L8 | 14 Mc.        | —2 "       | 34" "     |

All coils are of 14 s.w.g. copper, and wound on air.

interest and perhaps encouragement.

This antenna is used on all bands, i.e. 50, 28, 14, 7, and 3.5 Mc. On 50 Mc. all Australian States and New Zealand have been worked with S9 reports, on 28 Mc. results appear to indicate that any station heard may be worked. The owners of various types of beam antenna never appear to hear anything not audible using this aerial, but on the contrary, appear to miss quite a lot. On 14 Mc. 135 different countries were worked between March and November, 1948. On 7 Mc. all continents except South America have been worked at least 50 times each, while on 3.5 Mc. twenty-three countries on five continents have been worked, during the past six weeks.

The system is used as an end fed hertz on 3.5 and 7 Mc., and as a zeppelin fed hertz on the higher bands. On 3.5 and 7 Mc. the coupling circuit is a parallel resonant circuit link coupled to the final amplifier by six feet of co-axial cable with the outer grounded at both ends. On the higher frequencies the feeders are series tuned, but results are much superior when the capacity is placed in the live feeder and the antenna current meter in the dead feeder side. The poles supporting the antenna are each 35 feet high but the one at the south east end is erected on ground approximately five feet higher than that at the north-west (fed) end. This results in a tilt favoring the north-west path, but results on all bands give no evidence of this.

At first glance you will wonder how it is possible to resonate 25 feet of twin (zepp) feeder with a series condenser to feed a flat top of 104 feet on the 14 Mc. band. It makes sense on 28 Mc., i.e. 1/2 wave feeders, but 1/4 feeders on 14 Mc. appear all wrong. I will not go into the theoretical reasons for the fact that the system is sharply resonant in this condition, but suggest that you try it. On 7 Mc. and 3.5 Mc. it would appear to be correct to leave the 25 feet dead feeder disconnected, results here indicate however, that it is better to leave it connected to the low voltage end of your parallel resonant coupling circuit.

Although it is realised that this system has many shortcomings, it is offered as the only system I have been able to evolve that is capable of really good results all round the compass on any of the six Amateur Bands—including 11 metres—normally used by amateurs.

## SYSTEM OF KEYING

It has been suggested that key clicks and/or b.c.i. may be a bug-bear on 80 metres; experience has shown that this is not so. The transmitter here is keyed in the centre tap of an 807 buffer stage using the filter shown in the accompanying diagram. With this arrangement it is possible here to plug a highly sensitive receiver into the transmitter power mains outlet and adjust it to maximum sensitivity tuned away from any station, i.e. no a.v.c. voltage, and it is not possible to determine whether or not the transmitter is being keyed.

\* 25 Farrell Street, Glenelg, South Aus.

# Frequency Measuring Contest

## RULES

1. The Frequency Measuring Contest will be held on the 25th March and 1st April, 1949 (not 18th and 25th March as previously announced), commencing at 8.30 p.m., and will consist of five transmissions in the 7 Mc. band on each of these two nights, making 10 test frequencies in all.

2. The Contest is open to all States of the W.I.A. and Members, Associates, and Student Members are eligible to compete.

3. Prizes will be Orders for purchase of Radio Gear, 1st Prize, £3; 2nd Prize, £2; a Special Prize of £1 for the contestant who, in the opinion of the Judges, has made the best use of home built equipment.

4. Entrants will submit a minimum of four frequencies in the Contest, out of the ten transmitted, as competitors may find difficulty in obtaining accurate measurements on some of the transmissions, due to interference.

5. The approximate frequencies plus or minus 10 Kc. for purposes of location will be:—

1. 7010 Kc.	6. 7030 Kc.
2. 7050 "	7. 7070 "
3. 7090 "	8. 7110 "
4. 7130 "	9. 7150 "
5. 7170 "	10. 7190 "

6. **Judging.**—The error in cycles per second of each of the frequencies submitted to be totalled, and the average error in cycles per second determined. The lowest average error to be the winner.

7. The Judges will take the frequencies submitted by a Frequency Measuring Service, independent of the W.I.A., as being correct for this competition.

8. All measurements must be made at the Member's stated address, and the use of private or public institutions, or their equipment is prohibited.

9. Entries must be sent to the W.I.A. Victorian Division, 101 Queen Street, Melbourne, not later than 8th April, 1949, and marked "Frequency Measuring Contest," in the bottom left hand corner of the envelope.

10. The decision of the Judges will be final. Judges are VK3IK (Communications Manager), VK3VZ (Technical Editor), VK3JT (in charge of Frequency Measurements).

## PROCEDURE

VK3WI will commence operation on phone at 2020 hours on 7100 Kc. with information on rules, etc., of the competition.

— 7470.7 = 9259.3 Kc. to 14400 — 7470.7 = 9659.3 Kc. This meant that the second harmonic of this oscillator tuned from 18518.6 to 19318.6 Kc. Subtracting the high i.f. (7470.7 Kc.) from this range, one obtains 13777.9 to 14577.9 Kc.—conveniently covering the same band that the fundamental of the oscillator was designed to receive.

The effect of closer spacing of the two signals from a given station at the centre (roughly) of the 20 metre band was due to the fact that the change in frequency of the second harmonic was at twice the rate of the fundamental, and the two tuning systems were actually crossing in the centre of the band.

The cure for this trouble was to replace the 7470.7 Kc. i.f. transformers with 3830.7 Kc. transformers—the present frequency. This put the second oscillator on the high side of the high i.f., and necessitated adding  $455 \times 2 = 910$  Kc. to the frequency of the first oscillator. The second harmonic of the latter then ceased to beat with Amateur Stations to produce the effect described. The normal selectivity of the front end of the set takes care of the possible troubles of a like nature which might be expected from commercials above the 20 metre band, as none of them are as strong as nearby Amateur Stations.

In all cases, careful design of the oscillators to reduce harmonic content in their outputs is also a help.

It is not the writer's intention to waste "A.R." space by dwelling at length on other phases of the receiver

At 2030 hours (E.A.S.T.) VK3WI will change frequency to near the low frequency end of the band, calling on c.w. F.M.C. (Frequency Measuring Contest) No. 1 (three times) de VK3WI (three times), to be repeated for approximately three minutes, then key down for two minutes, followed by F.M.C. No. 1 (three times) de VK3WI (three times) QSY to F.M.C. No. 2.

The above procedure will then be repeated for the next frequency.

## SAMPLE ENTRY

Name—Joe Brown.  
Address—Marine Pde., Elwood, Vic.  
Date—April 4. Call—VK3XYZ  
Frequency Meter Details—Class C Wavemeter.

March 25—	April 1—
No. 1 —	No. 6 —
" 2 7049.42 Kc.	" 7 7069.90 Kc.
" 3 7092.64 Kc.	" 8 —
" 4 —	" 9 7160.55 Kc.
" 5 7170.02 Kc.	" 10 —

I declare that this entry was made on Frequency Measuring Equipment normally used for frequency measurement in my own station.

(Signed) Joe Brown.

## DOUBLE CONVERSION RECEIVER DESIGN

(Continued from Page 3)

of one or both. The writer found that the best form of decoupling was a 0.02 uF. mica condenser from the actual last turn of the oscillator tank to the nearest chassis point.

At this stage it might be as well to urge all intending constructors of double superheterodyne to isolate all stages by separate shield cans having double, rather than common, walls. It will pay them in the long run.

Troubles of type (c) are more particular in their nature. They are best explained by quoting in detail a case which occurred during the development of the writer's present receiver. Here are the clues: low i.f. 455 Kc., second osc. 4285.7 Kc., high i.f., the sum of these two, viz., 4740.7 Kc. band being tuned 20 metres; first oscillator on the low side of the signals for stability; symptoms of trouble—all the stronger stations on 20 appeared twice on the bandsread dial, but the separation between their dual positions was greater toward each end of the band. For example, Station A, on 14000 Kc. might be heard on 14100 Kc. also; Station B on 14310 Kc. would be heard also on 14400 Kc.; but Station C, on 14200 Kc. would have its other spot much closer, at, say, 14205 Kc.

To save the reader hours of head-scratching which the writer put in before realising the cause of the trouble—yes, the cause was simple—the solution is offered forthwith: The tuning range of the first oscillator was 14000

discussed; almost every other part of the set is conventional, and the same precautions as to rigidity, ventilation, shielding, etc., are taken there as for any other receiver.

Should any reader be interested in further information about this particular receiver, the writer will be happy to provide it on request.

## R.A.A.F. RESERVE

(Continued from Page 3)

R.A.A.F. messes, thus giving you the opportunity to get together with other Reservists and Permanent Members for discussions on technical and service matters generally.

## How Can I Join?

Now that you have read this, and the conditions of service (set out in "A.R." July 1948, page 14), sit down and ask yourself—

"Am I prepared to spend some of my own time to advance my knowledge of radio and its applications in the Royal Australian Air Force?"

The answer will most certainly be "Yes." Then write and ask for an enrolment form P/P 49 to:—

Secretary, Air Board, Victoria Barracks, Melbourne, S.C.I.; or

Your nearest recruiting office; or The Chief Signals Officer of your Area.

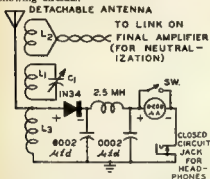
If you have some personal queries you would like to have answered before you make an official application, write a personal letter to S/Ldr. Fred Bibby, c/o D. Tels & Radar, R.A.A.F. Headquarters, Victoria Barracks, Melbourne, S.C.I.

## SUGGESTIONS FOR USE OF GERMANIUM CRYSTALS

By courtesy of J. H. Magrath & Co., of 208 Little Lonsdale Street, Melbourne, we publish herewith two circuits featuring Germanium Crystals.

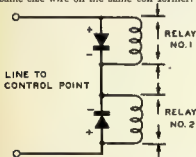
In both circuit diagrams showing the Germanium Crystal, the bar of the crystal symbol represents the cathode. On each Sylvania Germanium Crystal the cathode side is indicated by a green band and the label "Cath."

The B.T.H. British-made equivalent of the 1N34 is equally effective in the following circuits:—



## TUNED FIELD STRENGTH METER

While this instrument has been designed specifically as a wide-range field strength meter, it may be employed also as an absorption wavemeter, listening monitor, and neutralisation indicator. L1 and C1 must resonate to the operating frequency of the transmitter under test. L2 consists of a few turns loosely coupled to L1. L3 should be about the same size as L1 and coupled fairly tightly to L1. All coils are wound with the same size wire on the same coil former.



## DUAL RELAY CONTROL

Employing crystal diodes, this control system makes it possible to operate either one of two distant relays over a single-pair line. The crystal diodes shunting the relay coils are connected to the line with one polarity, the diode whose anode is positively impressed passes highest current and picks up the relay across which it is connected. When the battery is reversed, the second relay picks up and the first drops out. A higher battery voltage must be employed to pick up the relay shunted by the back-connected diode.

Amateur Radio; March, 1949



No mechanical or electrical device can avert an occasional sea tragedy, but modern electrical instruments have been the means of saving countless lives that, without them, would have been lost. With an automatic transmitter, an abandoned ship can continue to ask for aid: sending out name and position until the final plunge.

On ships that do not keep a continual wireless watch, an auto alarm will receive and record distress signals over long distances by International Code at close and regular frequencies. The proved efficiency of these life-saving electrical instruments is due to the designers and manufacturers—and I.R.C. Resistors play no small part in their make-up. YOU can rely on IRC for ALL your Resistor requirements.

# IRC RESISTORS

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BRADBURY HOUSE, 55 YORK ST., SYDNEY • BX2508



# Series Screen Modulation of Type 3 MK. II

BY B. M. FERGUSON,\* VK3FN

Here is a new method of modulating the Type 3 Mark II, which is in a class of its own for general use with this equipment and is ideal for portable operation. The modulator can be made to fit into the 3½" square coil compartment of the spares box.

Fig. 1 shows the audio line-up and method of connection to the transmitter. The circuit cannot be simplified any further and results obtained with it are really astonishing.

It is no exception to other systems of efficiency modulation in that it is critical as to grid drive and plate loading. Fortunately however, these adjustments are ridiculously easy—provided you follow the tuning instructions carefully.

**Modification to the Transmitter.**—A s.p.d.t. toggle switch is mounted about 1½" to the left of the power inlet cable and two insulated pin-jacks in the intervening space.

J1 is wired to one side of the switch and J2 to the 240 volt lug supplying the screen and oscillator. The screen resistor is removed from the valve pin and connected to the other side of the switch. The switch arm goes to the valve screen pin. **NOTE.**—Do not use shielded wire to carry the audio.

**Modification to the Power Supply.**—Two pin-jacks are fitted through the ventilation holes just below the a.c. power inlet. One is earthed and the other is wired to the 6 volt pin on the power outlet socket.

**Modulator.**—The modulator is constructed on a very shallow chassis. Valve pins are bent down flat and the chassis is made just deep enough to clear the wiring from the side of the spares box. It is bolted to the lid and the microphone jack and gain control fitted to the lid. The shaft of the latter is insulated from the lid. Three grommets provide outlet for (1) heater connection to supply, (2) lead to J1, (3) connector to J2, and an earth lead for connection to transmitter box, under corner screw. The latter was found to be desirable.

The modulator slides snugly into the 3½" square coil stowage compartment of the spares box, leaving the balance of the box available for other gear—small speaker, three-band monitor-cum-modulation checker, and the switching associated with the latter equipment.

The components are quite ordinary, the transformer for instance is from an old neodyne of 1927 vintage! To the critical ear the audio lacks "balance," and, strange as it may seem, it is the absence of some of the "highs" which is responsible. This condition is partly due to the by-passing effect of the screen condenser (0.002 uF.). A further contributory factor may be the "heater to cathode" capacity of the 6J5GT. The effect is not bad and you are assured that definitely none but the critical ear

will detect the weakness. It is a minor problem which critical individual users of the system must solve for themselves. Only those requiring to work DX through bad QRM would need to bother. The modulator is run "flat out" in order to fully modulate the carrier.

The features may be listed as under—

1. Modulator power is drawn from the transmitter 240 volt screen and oscillator supply; whilst this imposes an additional 6 Ma. on this particular circuit, the supply as a whole delivers much less current on phone than for c.w. The rectifiers are not endangered.
2. The fully modulated input—with linear output waveform—is twice that previously reported using other systems of modulation.
3. Phone is automatically available for a.c. or battery operation, thus making it ideal for portable operation.
4. No major modifications to the transmitter are necessary. Additions are very simple and easily made. Circuit constants are untouched and metering remains as is!

## ADJUSTMENT PROCEDURE

- 1.—Meter in position 6, switch to c.w. and tune up in the usual manner to say one division over half scale (16 divisions).
- 2.—With meter still in same position, switch to phone and input should now drop to about 11 divisions.
- 3.—Now switch meter to position 3 and check grid drive to ensure that it is ample. It should be about 20 divisions. **Two thirds full scale.**
- 4.—Return meter switch to position 6.

increase loading by one or two divisions until it is 12 or 13 divisions.

5.—Meter switch is now put back to position 3 and recheck grid drive and bring up if necessary.

N.B.—The procedure outlined is not an academically correct method for the adjustment of efficiency modulation. However, if the foregoing instructions are faithfully observed, the result will be a fully modulated and perfectly linear output wave form. Also, for the sake of simplicity, all meter readings are given in small divisions of the scale (30 full scale).

No isolating transformer for 6J5GT heater is necessary.

From 3.5 Mc. crystals it is necessary to operate the 8L6 as a doubler on 14 Mc. In order to obtain sufficient grid current. The output will not suffer under these conditions—it is actually much greater because of the increased plate efficiency.

All gear has been built into one case, 15" x 18" x 5½".

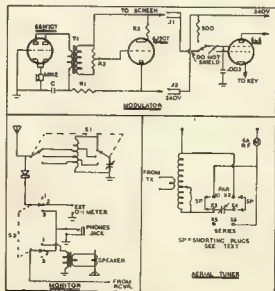
## AERIAL TUNING UNIT

The aerial tuning unit is ample, but effective, and provides facility for either parallel or series tuning of aerials. The normal aerial tuning may be used as desired. All coils have been cleaned and rewound with silver wire (except 3.5 Mc. coil L1A). They have all been provided with two turn links and arranged in the following order: L1A 3.5 Mc., L2A 7 Mc., L3A 14 Mc., L4A 28 Mc.

Operation is not intended on 28 Mc. but the unit can be used as an exciter. The links are connected to the centre pins and the corresponding connections on the socket feed through co-axial to two terminals just over the meter.

Fig. 1.—Schematic diagram of the modulator, monitor and speaker (bottom left), and aerial tuning unit (lower right). The series-parallel antenna switch could be a d.p. d.t. knife switch, or as used here for greater compactness, two shorted parallel type line plugs, made up of banana plugs; the sockets being spaced ½" apart and are mounted on a micalex base 2½" x 1½".

- J1, J2—Insulated pin-jacks.  
M—F.M.G. insert type carbon microphone.  
T1—3:1 audio transformer.  
C—0.1 uF. 400v. paper condenser.  
R1—5,000 ohms 1 w. carbon.  
R2—0.5 Meg. carbon pot.  
R3—1,000 ohm 1 watt.  
S1—2 pole 3 pos. waf. switch.  
S2—2 pole 3 pos. waf. switch.  
Pos. 1 Receiver to speaker.  
" 2 Receiver to phones, and mon. to meter.  
" 3 Monitor to phones.



\* No. 2 Second Court, McGowan Ave., West Preston, N18, Victoria.

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# This F.M. And Television Business

At the present time f.m. and television are receiving considerable publicity in the Press, and therefore some comments from W0SGK, Kansas, U.S.A., in a letter to VK3FO, gives us a pointer on what we can expect in the future, when these services get under way.

He deals only with the broadcast listener's reaction to f.m., but nevertheless his comments are most interesting to the Amateur, as they affect us vitally. To quote—

"F.M. is by no means the big thing that you people seem to think it is. F.M. is somewhat better in town, where interference is higher, but the trouble is that f.m. receivers are expensive to maintain, to buy, and the big majority of people would much rather spend a small sum for the cheap b.c.l. sets, a.c./d.c. circuits, almost no sensitivity, less if possible selectivity, high distortion, and tune in the local broadcast station, go about their business, paying very little attention to the programme being transmitted. They don't notice or care for the better quality, by no means enough to pay the much higher price. F.M. range is short, 30 miles or so, which cuts into the market considerably. The people living away from the

town are more interested in radio, therefore the lions' share is for a.m. sets, small and cheap."

W0SGK has some interesting comments on television interference and gives some idea of what is to come. To quote—

"The front end of a television receiver is as wide open as a farmer's barnyard gate, the r.f. amplifier must respond to a channel some five megacycles wide with equal response, in the 45-90 Mc. region. Naturally the response outside the 5 Mc. band is plenty, at 2 times down, it will pick up over some 25 Mc. The i.f., also 5 Mc. broad, is located between 20 and 28 Mc., and has plenty of skirt response. The video channel is 5 Mc. wide, from zero to 5 Mc., and naturally to cut the selling price, shielding is almost non-existent, filtering likewise, also decoupling. The usual procedure is to sell sets as far out as possible, the fringe of the signal area takes in the largest number of customers naturally, and with the receiver having such a potential for trouble, trouble is the usual occurrence.

"An Amateur living some three doors down from such a set owner, running perhaps 200 watts on 80 metres, blots

out his picture, so he shifts to 40, instead of the 3.5 Mc. interference to the video amplifier, his third harmonic at 21 Mc., again blots the picture; he moves up to 14 Mc. or 28 Mc. and harmonics enter the front end; he goes to 6 metres, and adjacent channel interference shows up —you can't win.

"He shuts down entirely, and the set owner gets a fine herringbone pattern, and he finds that the interference is coming from every station on the air with fundamental frequency in video range, harmonics in the i.f. range, or from a band on either side of the r.f. channel, with a signal up to maybe 25% of the desired signal voltage. The best hope for progress at the moment seems to be to move the whole thing up into the 400-700 Mc. region—to get as far away from the lower spectrum as possible, which means throwing out the whole thing and starting from scratch."

W0SGK's views are perhaps on the black side, but it might be a blessing in disguise that we are behind in these latest developments, because, if we are wise, we can profit by their mistakes, and when television comes, as it most certainly will, we can start on frequencies which will eliminate, or at least reduce, the troubles which apparently beset it now.



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# FEDERAL, CSL and DIVISIONAL NOTES

Federal President.—W. R. Groom, VK3WQ; Federal Secretary.—W. T. S. Mitchell, VK3UM, Box 2611W, G.P.O., Melbourne.

## NEW SOUTH WALES

Secretary: Dick Dows (VK2RP), Box 1734, G.P.O., Sydney

Meeting Night.—Fourth Friday of each month at Science House, Corner Gloucester and Essex Sts., Sydney

Divisional Sub-Editor: H. J. Trehan, VK2BM, 5 Waverley St., Burwood

Zone Correspondents.—North Coast and Tablelands: P. A. H. Alexander, VK2PA, 811 St. Port Macquarie, Newcastle; E. J. Baker, VK2JP, 13 Skelton St. Hamlyn, Newcastle; C. Fielding and L. H. Hawkins, VK2VJ, 27 Comfort Ave., Casanook, Western Sydney; S. J. Russell, VK2QA 114 Bago St., Nyming, South Coast and Tablelands: R. H. Rayner, VK2QD, 42 Pettit St., Yass; Southern: E. H. Arnold, VK2QJ, 673 Forrest Hill Ave., Albury; Western Suburbs: A. C. Pearce, VK2AH, 48 Harrobor Ave. Five Oaks, Eastern Suburbs: H. Kerr, VK2AK, No 4 Flat, 114 Hewitt St., Bronte, North Sydney; J. D. Coxe, VK2AS, 775 Murray Rd., Maitland; St. George: J. A. Ackerman, VK2ALG, 32 Park Rd., Carlton; South Sydney: V. H. Wilson, VK2VW, Cr Wilton St. and Marine Pde., Manly

## VICTORIA

Secretary.—C. C. Quin, VK3WQ

Administrative Secretary.—Mrs. O. Cross, Law Court Chambers, 191 Queen St., Melbourne, C.I.

Meeting Night.—First Wednesday of each month at the Radio School, Melbourne Technical College

Zone Correspondents.—North Western: B. R. Mann, VK3BH, Queenscliff; Western: C. J. Galloway, South Western: B. Sefton, VK3BJ, 178 Raglan Street North, Belair; North Eastern: J. A. McRae, VK3AG, "Edwards" Avenue, Park; Western: W. J. Dobbie, VK3MF, 42 Walnut Ave., Mildura; Eastern Zone: J. D. Chilver, VK3DI, 20 Smith St., Leongatha

## FEDERAL

### DX CC NOTES

In this month's notes we list the first three phone awards for DX CC.—on gratifications to each, with a special mention to "Morris" Morris, VK3BS, who has just won his first award.

1. Award of three certificates which were presented in Victoria, B.C. for August, 1947, and amended since "Federal Volume" in "A.B." for April, 1948. All applications must comply with these Rules, and it will greatly facilitate checking if cards are sorted in the order for countries as listed in January, 1948, "A.B."

### PHONE

VK3BJ (20)	Zone Countries	238
VK3BJ (22)	27	192
VK3BS (26)	89	101

### C.W.

VK3BN (8)	Zone Countries	40	186
VK3BS (13)	89	187	
VK3BV (12)	89	188	
VK3BR (10)	88	117	
VK3BD (7)	40	116	
VK3BE (13)	89	189	
VK3DA (30)	88	118	
VK3DL (12)	40	118	
VK3HR (23)	88	106	

### OPEN

VK3BH (5)	Zone Countries	59	163
VK3DI (4)	40	151	
VK3DJ (12)	89	188	
VK3EG (4)	58	198	
VK3JE (18)	59	183	
VK3MC (6)	39	184	
VK3MD (12)	37	184	
VK3NR (6)	58	183	
VK3HR (10)	37	117	
VK3EL (18)	59	116	

### New Awards

VK3NS (23) . . . . . 89 101  
Stickers for DX CC certificates will be issued to those who complete every 10 additional countries. These will be issued in due course

## WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the official broadcasts.

VK2WJ.—Sundays, 1100 hours EST, 7195 Kc. and 2000 hours EST, 50.4 Mc. No frequency checks available from VK2WJ

Intra-state working frequency, 7175 Kc.

VK3WJ.—Sundays 1130 hours EST, 7195 Kc. Individual frequency checks of Amateur Stations given when VK3WJ is on the air

VK4WJ.—Sundays, 0930 hours EST simultaneously on 3750 Kc, 7190 Kc, 14,342 Kc, 52.4 Mc and 144,738 Mc. Frequency checks are given two nights weekly, and the times are announced during Sunday broadcasts. 7010 Kc channel is used from 1000 to 1030 hours each Sunday as VK4 jury service to 4WJ

VK3WJ.—Sundays, 1000 hours EAST on 7194 Kc. Frequency checks are given by VK3WJ on Friday evenings on the 7 and 14 Mc bands.

VK6WJ.—Sat. 2 p.m. Sun. 9.30 a.m. W.A.S.T. between 7800 Kc. and 7200 Kc. No frequency checks available

VK7WJ.—Second and Fourth Sundays at 0800 hours EST on 7174 Kc. No frequency checks are available

## COUNTRY LIST

Please amend the January list as follows:—

For Basutoland substitute 2400 . . . . . Z80

For Swaziland substitute 2400 . . . . . Z87

Add the following new countries:—

Norfolk Island (18) . . . . . HV

Yaroslavl City State (15) . . . . . HV

## FREQUENCY ALLOCATIONS

Listed below are the frequencies at present available for Australian Amateurs, and also types of emission that may be used:—

3.5 to 3.8 Mc.—A1, A2	
7.0 to 7.3 Mc.—A1, A2	
14.0 to 14.4 Mc.—A1, A2, FM	
20.95 to 27.33 Mc.—A1, A2, FM	
28.0 to 30.0 Mc.—A1, A2	
50.0 to 54.0 Mc.—A1, A2, A3, FM	
144 to 149 Mc.—A1, A2, A3, FM, Pulse	
288 to 296 Mc.—A0, A1, A2, A3, FM, Pulse	
576 to 586 Mc.—A0, A1, A2, A3, FM, Pulse	
1448 to 1483 Mc.—A0, A1, A2, A3, FM, Pulse	
3300 to 3450 Mc.—A0, A1, A2, A3, FM, Pulse	
6480 to 6800 Mc.—A0, A1, A2, A3, FM, Pulse	
10800 to 16500 Mc.—A0, A1, A2, A3, FM, Pulse	
21000 to 21900 Mc.—A0, A1, A2, A3, FM, Pulse	
30000 Mc. and higher.—A0, A1, A2, A3, FM, Pulse	

## WORSE PRACTICE TRANSMISSIONS

By the time these notes appear, it is anticipated that Morse practice transmissions will have commenced from most Divisional WI stations. Listen to the Sunday broadcasts for details of the frequencies and times of these transmissions. The tentative frequency will be 1500 Kc.

## AMATEUR CALL SIGNS

Due to the pending publication of a new P.M.O.'s Call Book, the use of call signs in Australia. Amateur Call Signs has been discontinued. The new book will have blank interlines, so that amendments may be made more readily than in the past. It is further proposed to issue monthly lists from the Department of these changes.

## COMMERCIAL INTERFERENCE

Since we first published our intentions in this matter of commercial stations' interference in our hands, we have had very meagre response to our plea for details of these stations. Unless we can have consistent reports coming in, we will be

## QUEENSLAND

Secretary.—C. G. Argueison, Box 638J, G.P.O., Brisbane

Meeting Night.—Last Friday of each month at the State Service Building, Elizabeth St., City

Divisional Sub-Editor: F. H. Shannon, VK4SN, Manden, via Rosewood

## SOUTH AUSTRALIA

Secretary.—E. A. Barber, VK5MD, Box 1234K, G.P.O., Adelaide

Meeting Night.—Second Tuesday of each month at 17 Waymouth St., Adelaide

Divisional Sub-Editor.—W. W. Parsons, VK5PS, 483 Esplanade, Henley Beach

## WESTERN AUSTRALIA

Secretary.—W. E. Conon, VK5AG, 7 Howard St., Perth

Meeting Place.—Pavilion House, Cnr. St. George's Ter. and King St., Perth

Meeting Night.—Watch the Monthly Bulletin

Divisional Sub-Editor.—VK5WT, Mr. D. Couch, Mary Street, Watermans Bay, W Australia

## TASMANIA

Secretary.—J. Brown, VK7BJ, 12 Thriza St., New Town, Tasmania, 1932

Meeting Night.—First Wednesday of each month at the Photograph C Society's Rooms, 163 Liverpool St., Hobart

Divisional Sub-Editor.—7 Connor VK7CT, 285 E. Esplanade, St. Hobart

Northern Correspondent.—C. P. Wright, VK7LZ, 3 Knight St., Launceston

obliged to cease supplying the proper authorities with lists. We again ask all Divisional Councils and individuals to send relevant details to the Federal Secretary. Help us to help you—the ball is in your court

## NATIONAL FIELD DAY CONTEST

The 1949 N.F.D. Contest is over for another 15 months, and already some of the keen portable boys are planning for next year's contest. Of those known to have participated, all are unanimous in their feelings of having had a most enjoyable time and look forward to the next. Those known to have taken out gear are VK1PA, VK5A, ADB, A1, GK, ZN, FF, UN, VK4HE, A1, and VK5TR. We hope there were others and amateur logs are forthcoming. While the numbers were not very encouraging, this was offset by the enthusiasm by some of the amateurs. It is understood that one "baby ear" had been on the extra strain of the turning "see me beam" other parties had plenty of contacts with South America—most of them some of the boys even got the P.V. interested enough to go cook the meal (Now isn't that a good reason to go out to the next N.F.D.) A little bird told us that some publicity is expected from a well known pictorial magazine.

## FEDERAL CONVENTION

Although it is too late at this time to give reasons for Federal Convention items, it is not yet too late to bring your delegate to display items for General Business. See that they have that item before they come down to Melbourne for Exder.

## I.A.R.U. NEWS

The Radio Club of Argentina has requested the I.A.R.U. to accept on behalf of the Union and its members, a trophy donated by one of its members. Since I.A.R.U. delegates will display the trophy, which is a bronze original by the sculptor Louis Norbordo, is on a base of granite and is in the form of a woman who emerges from a globe, graph key, holding in her hands leaves of oak and laurel. The statue is slightly more than a metre high. The trophy will be placed in the custody of the I.A.R.U. and the statue will be displayed. As at December 31, 1949, the trophy is to be awarded to the I.A.R.U. member-assembly which has been a member of the Union for more than ten years.





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**1948**

provided the testing period during which their unquestioned reliability ensured for them a permanent place as valve complement to Australian receivers—a fact exemplified by the following unsolicited testimonial:

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Tom, Alex 5ABE is working DX on 20 phone. Bill JABU had holiday at Lorne with a Type A Mark II with phone, and 2BV is on 80, what is back is 2BV back on 20 phone but have not heard Bill SWT on for some time, what's the matter Ben?

Don't forget check the monthly news hook-up on 10. The first week of each month at 10 a.m., hope you get a good muster next week hook up (3BX2 chit caller)

**Gen. Reg. Amateur Radio Club.**—At the first meeting of the above club on 14th members used the call sign of Mr. P. Foster 3BX2 brought along to this meeting a v.h.f. transmitter in which some of the members were interested. At the next meeting Mr. Dick Highway 3ABK gave a lecture on "Radio and A.C. Frequencies" and had his Type 3 Mark II, a Class C Wavemeter, and an Oscilloscope to illustrate his lecture. Mr. Alex Bell 3ABE, the President of the Club, who has been in the club since 1935, and Mr. John McConna 3BV, and Jack Gray 3AJI who were visitors to the club. At a later meeting Mr. Al Fordor gave a talk on Transmitters used by the Army during the War and used the black board to illustrate his talk which took up quite a bit of the evening. Listening members at the club would get in touch with the Secretary, Mr. Bob Wooley, 3IC, at 158 Kilgus St., South Geelong.

#### EASTERN ZONE

The raw deal at Maffra 3ALA is using c.w. on 10. A 10V 40W set-up to work 2L and other Maffra stations, one of which is to move to Melbourne for 3AEG. 3AGW was taken a Type A Mark III to work the boys who are not studying; good luck Jack. 3AHN is temporarily inactive as he is building a new modulator unit incorporating a pair of 6AV6's. He took Type 3 Mark II with him when he was holidaying at the Gippsland Lakes, but had not much to report except bad QRM; was there QRM from seaward?

The Zone was unable to hear 3ABO of Morang on 10 the hook-up on 6th February. He has a 7103 as a modulator, oscillator on 344 Mc., but has not been working yet. Keep it lit, Max. Your firm will soon expect to move to the Maffra Peninsula shortly, we hope you stay in the Zone. Max, he has been working 14 Mc. c.w. on 8 watts. 3AUL, a second unit, is now on the 144 Mc. Field, but he does not have many QRM, as his 7.5 amps on the receiver was not working; however, he had work 3ABW who was portable at Mt. Dennis during the winter with the antenna coupled to the mast.

#### CENTRAL WESTERN ZONE

3TY is a most unusual type of bloke, he sent us a "serried of notes." He has been very busy in last 12 months and besides keeping the motor three going at 7000 revs, he took time out and with himself a new 12 tube double-conversion super with all the necessary upgrades and shuntings. He was 391, landed a nice new and pretty new set inside an AT10 case, a v.f.o. job using a 60J5 oct. 30V6 bulb driving a 48 p.p. Thakling a 600 ohm 100K resistor in each lead and the set was the 1000 and 30V6 and with an input of 4.150 was given. 3BE 270 from 1K5 (good receiver at Lur other end of hill), so work that out you 4000 carloads.

For 1000 who don't hear the W.L.A. broadcasts and missed it in the last month's magazine, the news hook-up has been changed back to its original 10. of 1.3 a.m. on 7120 Kc on the second Sunday in the month.

#### NORTH EASTERN ZONE

3HP, 3KR, and 3VY modified messages during the recent broadcast at C.G.tern. Associate Ken 3VY has not been working or chasing. The club operator on Avenue F.R. Brigance's mobile station 3ABO, under call sign V.A.Q.S.I, is back. Four 3VY attended to date. 3ABO, 3VY has been operating. Max Hagan 3AAG has been working on 10. Type 3 Mark II 3VY is still in poor health. 3VY put up a mast and new beam, then received transfer to 3AEG. Dick is the third Ham to leave this zone since a writer took over the mast. 3VY has been embarrassed by the 3VY report, as even his Vice friends asked him when the wedding was to take place. The rumors, but his friends told him it is "one he did something about it anyway." 3AEP still running in the M.G., so has not broken his most yet. 3ABW putting up antennae and two towers. The 3VY Club heard a radio calling, he call Jack Amos, an old timer of the cabaret days, is making a come back in the radio game. He built one of the stations for five brigade used and made beautiful job. 3KR, after not with the Convention screws, will not be worth mentioning as these notes.

## QUEENSLAND

Our apologies to VKI members for no notes from this Division in the February issue. January being the holiday period there was very little activity by Council and no general meeting was held in December.

January general meeting was held on the 10th inst. The President 4AW welcomed visitors 10K, 4BN Mr. Ross and 4K3ART. Nominations were received for office-bearers for the coming year. Voting will take place at the February general meeting and the results will be announced in the notes for April. 4BN members will receive postal votes. The resignation of 4K3 Officer was received with regret by all present. The Country Representative, 4SN, spoke of the excellent work done by the retiring QSL Officer and expressed the thanks and appreciation of all country members to 4SN for the very efficient manner in which Eric carried out his duties. 4SN moved that the Queensland Division show its appreciation by conferring on 4SN honorary life membership. This was unanimously supported. Congratulations Eric!

Certificates were received for the following awards: Trans-Tasman Award—1st C.W. Section 4BC and 4AP; 1st Open Section 4ZZ. DX C.G.—Telegraphy 4DB. Remembrance Day Contest (QSL)—4BC 4X3, 3rd 4CQ, 4th 4KO.

For some months past this Division has been confined to England food parcels and from time to time has received letters of thanks from English Amateurs. During January a letter of thanks was received from the Bradford Club and members of that club sent a recording of personal greetings and thanks to the VKI Division. The record was played over 4WI on the 23rd January but unfortunately conditions on the 7 Mc. band were so bad that very few heard the message.

Members and non-members who purchased Gibson Girls from Disposals are asked to remove the automatic dip from the tuning shaft to eliminate the possibility of QRM signals. Transmissions from these sets have been causing considerable QRM to coastal stations.

An old timer heard on the 7 Mc. band was 41B, Bill Roberts being very active on 14 Mc. 41B is a 10 Mc man who has been working on 7 Mc. lately as 4PD. We believe Tom has something out of the ordinary in rotary boxes. The angle iron tower is a solid job.

We cannot leave this section of the notes without congratulating the operator of 4WI who has at last added a daughter to his family.

#### ZONE NEWS

Townsville Zone (4OD)—41J was again active on 14 Mc. and was heard working an old timer 4OG who has hobbled up on that band after many years absence.

Mackay Zone (4KW)—4ER building box for 14 Mc. 4MA back from holidays and re-building 4AM operating c.w. but getting modulator built for use on 14 Mc. phone. 4ER used two antennas, each two half wave in phase; Bill has worked seventy countries, some of the recent culcies being VQI, HJ3, TV3, HK1, 4V4, CT, and 4M. 4ER has a grounded grid converter and a QSL and now has 88 countries.

Gympie Zone (4HZ)—4RA using Constant Set working c.w. 4ER working 14 Mc. DX and mid 4K3 is using QRP 300 watts on 20 and 30 Mc. 4V2 active once again now that the housing problem is nearly solved, for 21M at any rate. 4CR—"beginner's luck" was low Qd described his 4CR as "recently of a gold nugget worth approximately \$150." 4CR how was your luck when you started chasing DX, 4VY 4V1 very active on 4, Max reports that he has been wide open every day during January and most of December also. Max uses Dettol bottles as insulators on a series of two beams, reckons he'll have "home" free carriers from now on. Congratulations Max on getting 4V2 on 40 Mc. Victor is a 4ER during the Xmas holidays were 4OH, 4SN, 4UK, and 4BJ. 4BJ didn't see much of the mountain rig as reports have it that he was too busy eating bananas.

South West Zone (4ER)—4LD using a new antenna probably a 4GG special. 4EK very active on 6 metres and with 4CU has opened up a channel between Milmeran and Clifton. 4TY having trouble with 50 Mc. transmitter, 4UX has a new receiver. Claude now using a certain well known communication kit in a receiver of "home brew." Does it come up to the 4UX version of the 4B7. Claude's 4UX active on 5 metres. 4DA heard in the Sunday morning 4WI round-table.

That is all for this month, 73, and don't forget to send your Zone Manager news of your activity.

## SOUTH AUSTRALIA

The February general meeting was held at a capacity gathering, and all present were given a very interesting and instructive lecture on "Beam Antennas" by Mr. D. Robinson (3BN). Dave not only laid down on various types of beams but he demonstrated his remarks by means of portable beams and suitable indicating apparatus. A vote of thanks, proposed by that champion puller-down and putterer-up of masts, Jim Sullivan (3JK), was received with acclamation.

Among the visitors were Messrs. B. Perkins P. Humberston, H. Cassidy, W. Dempsey, H. Barrie, and J. C. Jones. 3V6VJ was given a certificate presented to 5GD and 4JLX congratulations in George and Lionel.

The resignation of Dr. Ross Auld (5AJ) from the Council was accepted with regret, although we realize that Ross is very QRL, and his previous trip overseas finally decided him. It's been a pleasure.

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we working with you Rose, although you don't seem to have much respect for my physique.

It was announced at the meeting that more than the required number of nominations had been received for the Council, and therefore a ballot would be necessary. This is good news and augurs well for the future of the V&S Division. It is not right that the same handful of members should year after year be placed in office simply because of the apathy of the rest. Here's hoping for a real fighting vote, and may the best men win. Nobody else is allowed to bring any eggs or tomatoes inside the hall as one or two of the candidates will offer a bigger target than others, and what's more I have only one pair of pants!

The question of larger meeting rooms also came up again, and the President explained that it was extremely difficult to secure any sort of rooms for so reasonable a rental as we were securing the present one. Some "good fare" then came to his feet and said that he could put a suitable room at the disposal of the Division and he was cordially invited to meet the Secretary, Treasurer and President after the meeting, so never a hogging.

It is remarkable how the boys roll up to the meetings these days, and whenever any of the old-timers happen to stand in the line, they always seem to be the difference between the present day attendance and the days when a dozen and a half was a full house. Don't forget however that this state of affairs has not come about by accident, but by good and careful management, and a good deal of tolerance, because there's no doubt about it, we have our share of "dilapots." Yes, I know that I am one of these.

The question of the atmospheric prediction charts being further published in "A.R." came up for general discussion at the meeting and some were in, and some against. It was finally decided to suggest that they be deleted, the deciding factor being the fact that the predictions do not arrive until too late to be of any use to V&S. It seemed to me that anybody of use who were in a position to use the predictions were loath to rise to their

feet and support them. This is a pity when one considers that the privilege of free speech took so much fighting for.

The proposed rules for the V.H.F. W.A.S. Certificate did not meet with too good a reception at the meeting also. Pymos and Norfolk Island, etc., did not seem quite in order, and as for divorcing the Northern Territory from V&S, well that takes some understanding, especially as the P.M.O. Department do not see fit to allot a separate prefix. Of course we could be wrong.

J&R (Vic. to you) will take unto himself a partner on 15th February and by the time you read these remarks will have decided if it is to be "skids or duhns." Be firm Vic, the first six cracks with the rolling pin are hardest anyway, but the doctor from the first crack to the last. You and your charming YP (that should get me a piece of wedding cake to sleep on), and also don't forget Gordon (XSL) will be sending you a series of Q&As on his organ in the Church, so you won't be lonely. I tried to arrange an arch of crossed 80s at the Church but couldn't get any starters.

We hate to boast, but V&S has the two outstanding six metre records, Clarrie Castro (XSL) and Bob Manuel (5RT). Only modesty prohibits us from saying that if there are any more coming up we will probably have them. Not bad for a "dick" state, eh?

As punctual as a clock that sits on the shank table of 5RZ, along comes the latest budget of designs from the South East way. J&A was very busy on V.H.F. and beams, and everybody was assumed to see how fast a windmill had grown in John's backyard (must have watered it well). With a 10 metre beam on top and before these notes are read a 10 and a 2 metre up their also, he sure will get results. 5Ms had his modulation tranny go up in smoke the other day (too much a those days Stewart). By the way how is the 10 metre band fairly active on 30 and 40 and is still slowly re-building, but as he has been acting manager at

the local watt factory, there is very little time for any more doing. Do you give away any names as from the factory please? J&W has been having a quiet but happy time on 10 metre c.w. "I dips me lid to you Tom."

5FD, one of the newcomers, has been working on 20 and 40, but is handicapped to the extent that he is living in Mt Gambler and his gear is out at his parents' home in the country. A little bird has whispered to me that one of these notes are read 40m, well I'm loaded in a larger house with his gear alongside him and also installed (I repeat, how do they do it?) K.I. ("Egg" to you), the other newcomer, is on 40 c.w. and is using a 7500 watt 4000 ohm 4 as a receiver, 5000 ohm 4 as his head in shiner, and one receiver for the month, but as he looks around and sees a new shack, it's nice to see garden now. 4 vegetables worth it. I bring in more money for gear, so, probably that old contact won't be missed. Has the new YP become resigned to sharing you with Amateur Radio Club?

If you fellows steel a fairly high shank down there, it will probably be Wick Bay's pipe (5MW) as he hitch-hikes his way to Melbourne through Mt Gambler. If any of you can manage to bury the main pipe you will be doing the boys here a good turn, as it has to be small to be buried. At the last general meeting I arranged with the Editor of "Splinter" to forward me a copy of that publication and he was more than willing, but somebody has fallen down on the job. You what a w and I will point.

A good many of the gang in V&S have been throwing a lot of mud at me because I was a member of the January 1940 Jury in the Criminal Court at Adelaide. They called me the "hanging Judge." A good man, as I true, "Your Honor, and it was even suggested that I had 'been taken to the bar.' Anyway, in my first day at the court while all the preliminaries were going on, I was away, and I was anxious to see that such a desperate looking person was not under guard. Taking a

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## PERSONALITIES

ent, he casually pointed in my direction and gave me a leering smile of recognition. I nearly collapsed from shock, and a fellow Jayman said to me "Do you know him?" I said "No." He said "He is here to hide my red face. I said 'who is it?' An official of the club." He said, "Well, they nearly had to get the 'Doctor' to me, I felt so upset. It just shows how much we've got with each other. The sense of the most upright of Americans, doesn't it. I must be giving cracks."

The new members of the Advisory Committee for 1948 (1947), Ross Harris (QFL), George Ramsey (AGD), and a "dark horse" Warwick Parsons (JPS). A thumbnail biography of these estimable gentlemen is I think called for, as here goes. Ross Harris—representative in VK5 for a prominent late-wave wire and cable company—is prepared at shortest notice to talk upon c.w. operations; hobbles are Amateur Radio and Amateur Radio. Ross Kelly—a big better and egg man for a prominent insurance company—is prepared to talk upon anything at shortest notice; has broken all the rules and regulations some time or other, and is thus fitted exceptionally well for the committee; hobbles are Amateur Radio and Amateur Radio. George Ramsey—a member of the new movement in Amateur Radio—is prepared at shortest notice to talk about anything connected with radio; has always been a good boy and obedient to the rules and regulations; hobbles are Amateur Radio and Amateur Radio. Warwick Parsons—a leading and going engineer on the pay roll of the leading company in the city of Melbourne, is prepared at the shortest notice to talk just—there is never on the air so cannot break any rules or regulations; is one of those strong, well-built, rapping, muscle types (he has a little bit of it, I try to be a muscle); hobbles are snoring, snoring, and snoring with a dash of Amateur Radio and Amateur Radio.

Noticed in a recent R.S.G.B. booklet a photo of a slap-up shack, and recognized it as that of my recent sparring partner George Ramsey (JPS). But it was not the shack, it was the man, and the electric clock but it was too well hidden for me.

The simple but effective frequency meter propounded recently by Amlino Ralph Turner (5TR) is achieving great popularity in VK5, and quite a large number of us have bought it. It is a lucky then most, because Ralph is personally making up my capacitance and inductances, and checking it against a known standard. A fine shop Ralph is in the city of Melbourne.

In my enthusiasm to become a radio Doctor, I did not think for a moment that I would receive any letters, but I did, and I have forwarded it to the Editor (whether he prints it or not remains to be seen). I signed Lucy's Commission, and in reply I would like to say that I am very sorry for you Lucy, but you are what is known as a radio widow, and believe me that you are not on your own, but that apparently you have not got what it takes to win him back from that alien "Amateur Radio!" have you tried clapping your hands and shouting "Come back!"

George XYL who signs himself "Fed Up" wants to know how he can stop her husband from eating peanuts in bed. What's a question that takes me a long time to answer, but I will try to answer it. It is that as eating peanuts will give anyone RALPHOS (head breath) to you, even his best pals will eventually tell him.

The J was in his element out in the back room during "smoko" at the general meeting. He was shearing all the sheep of their wool to pay for their disposal, and he seemed to enjoy his job. On "the" other day, I was heard to tell GJR that he should get 5PS to help him lay some bricks, as this would improve the figure of 5PS. I was told that the bricks were not there, it is too much of a strain for me to lay bricks!

## WESTERN AUSTRALIA

The January meeting was held on the 18th at Paddy Barnes' place. It was a very hot and humid evening, and no real wind, and the weather was very bad. The usual business was dealt with and VK5IN donated the VK5 Division two transmitting valves to be allotted as competitive trophies. The meeting closed at 9.30. The J was very happy to give us a very interesting demonstration of the radio gear in his van, in which he had crossed Australia from Sydney.

Much A.G.C.P. and QRM continued in the street. A local P.C. came along to see what was doing. One of the lads nearly talked him into joining the club. The lads were very friendly and were generally disposed to their respective transports before the midnight rash.

GKU has only been on the air a few weeks and has a big list of members to his credit already. Ross Harris (QFL) has been on the air a few weeks and has a big list of members to his credit already. Ross Harris (QFL) has been on the air a few weeks and has a big list of members to his credit already.

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## TASMANIA

I seem to have missed out on the notes recently due to pressure of business and at the moment am badly out of touch with all the Ham things in this fair Apple Isle.

The first field day of the 1949 series was held a couple of weeks ago, having been postponed from the previous week due to inclement weather. The honours of the day went to our worthy Secretary B. J. (B. J. has had a long and successful career under the care of 7AF who had picked a good position and tricked several of the searching parties. By the way, Lou, what happened to you?

I have heard of you, but I have not heard one or two locals "letting the bees" on the 7 Mc. band.

The VK7 Division has been asked to maintain communication for the Royal Hotel, Rosetta Committee, between the starter's launch and the judge's box for the sailing events. A similar set-up was used last year and proved very effective.

The next big event in VK7 is the annual General Meeting and Dinner which is to take place early in March. Hope they have more trout lubricated than last year, one just got nicely stunted and then it was announced that the barrel had passed out. It was after 10 o'clock too, worst luck.

The J is hoped to arrange a field day for the Sunday following the Dinner and as there will be some visitors from the Northern end of the island, we anticipate a good day's outing.

TJL's gear looks very nice these days, what with lots of lovely meters and 81Es and what have you. Do all those meters mean something? Lou? Saw a flicker in the bush yesterday. The J was very active Ham in the pre-war days and is now living in Canberra and has given radio away temporarily.

The A.G.C.P. class has started again for the year with a bunch of aspirants for the good old ticket. What about it some of you Associates? Time you had your tickets. We are looking for some new blood in our Division. The General Meeting. The Council has been the same for the last two years and several members, including yours truly, feel that a change is due. The J was very active Ham in the pre-war days and is now living in Canberra and has given radio away temporarily.

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Conditions on the 50 Mc. band were remarkably good through January and early February, especially on the 20th. Ross Harris (QFL) was on the air, and were also good for contacting country stations via tropospheric bending.

Openings to VK5, VK4, and occasionally VK3 occurred almost daily and on the 25th of January the new opening up of the band was noticed until 2225 the next morning to ZL all districts being worked by VK3. The signals were for the main part 58 to 80 with a few stronger, and considerable QRM was heard in the band.

On the 27th VK4BT was heard working VK3 at 1500 hours and in the evening working VK3 1150 and 2230 VK520, 60B, 6GS, and 6DW were worked by Melbourne stations. The next day 6PC worked up from 1100 to 1150 by VK3BR and VK3BR had no contact was made; that evening at 810 VK3BR worked VUEWG. Next VK6 opening was on the 4th of February when VK3GP worked VUEWG and VK3GP had a partial contact with him.

The band was open from 0845 until 1335 on the 6th of February for VK1 and VK4 so conditions seem to be holding longer for this type of work than they did last year.

## VICTORIA

Several new channels have been opened to the country stations; on the evenings of the 5th and 6th February VK3BR at McCrae had contacts with VK3BD in Horsham, a distance of 148 miles, with signals up to 50 dBm by VK3BR and VK3BR on both nights and on the evening of the 7th by VK3BR and VK3BD, 168 and 178 miles respectively.

VK3TR at Vinnar and VK3IL at Trafalgar South have also worked country stations and ran skeds with VK3BR at 2040 Monks and Thursdays. VK3AC at Red Hill is putting a tremendous signal over the 45 mile path to Melbourne. Eric is a very active Ham and has a four element w.v. beam 50 feet high.

144 Mc.—The writer must apologise for not being able to cover the doings on this band very fully this month as he is not very well established yet. This should be remedied in a couple of weeks when I should be able to give you a more present one has a loss of two 8 points over a dipole).

There appears to have been a fair amount of activity around the suburbs, although on this band there is a plenty of reports for newcomers. The of the transmitters in use are crystal controlled, although some are using simpler gear quite successfully. Band-pass converters, as described in 1948 "QST", are popular and several reports have been given good results.

VK3SL in Ballarat is active on the band, using a 58Z driving a 35T, a converter, and a three element beam. He has also worked VK3BR in Melbourne. 3QR on Churchill Island near St. Remo, is also very active and works quite a number of Melbourne stations. The signals from both country stations are very good. The 100m band nights were no others. 5VL at Red Hill is not on the band using a parallel rod oscillator and super-regenerative circuit. He has worked SABA and possibly other Melbourne stations.

The 144 Mc. Field Day was held on Sunday, the 6th of February. The weather was very wet, perfect for this type of activity. Stations out were SABA at Mt. Macedon, SANW at Mt. Donna Buang, and VK3BR at Red Hill. 5XRM in the 100m area, and 3CL at Mt. Paterick. Many contacts were made during the afternoon but it is understood that no records or new groups were broken. SANW worked through the Melbourne area about 25 miles, and SABA heard 3CL, approximately 130 miles.

576 Mc.—It was decided at the February meeting of the V.H.F. Group that there should be some activity on this band. VK3BR already has a push over the 100m band. The group is working, and others have promised to get receiving and transmitting gear built with a view to holding a field day.

The main difficulty is in obtaining tubes suitable for the band. KIL18 work very well, so anyone with the tube is practically in business. Receivers may also cause some trouble, as the KIL18 is the preferred type in either a self or separately quenched super-regenerative, the latter type may be more reliable. Antennae of course offer a great deal of scope as arrays giving high gain can be constructed in a very small space.



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**ITEM 52. TYPE No. AF5**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 8 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 22 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 53. TYPE No. AF10**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 500 and 125 ohms  
Insertion Loss: 0.4 db  
Primary L: 125 Hys. Leakage L: 17 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 54. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 500 and 125 ohms  
Insertion Loss: 0.4 db  
Primary L: 125 Hys. Leakage L: 17 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 55. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 56. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 57. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 58. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 59. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 60. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 61. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 62. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 63. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 64. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 65. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 66. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 67. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 68. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 69. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 70. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 71. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 72. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 73. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 74. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 75. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 76. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

**ITEM 77. TYPE No. AF15**  
Primary Z: 10000 ohms pp. Plus 34 db  
Secondary Z: 15 and 3 1/2 ohms VC  
Insertion Loss: 0.3 db  
Primary L: 125 Hys. Leakage L: 19 mH  
Freq. Resp: +/- 0.2 db 20 cps to 30 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

## ITEM 57. TYPE No. AW3

Primary Z: 3000 ohms pp. Plus 34 db  
Secondary Z: 8 ohms or 2 ohms  
Insertion Loss: 0.5 db  
Primary L: 40 Hys. Leakage L: 55 mH  
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s.  
Base: 4 x 4 x 4 1/4" H. Wgt. 6 lbs.  
Mntg: VII. "S" is 1 1/2"

## ITEM 58. TYPE No. AW4

Primary Z: 3000 ohms pp. Plus 34 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.5 db  
Primary L: 40 Hys. Leakage L: 50 mH  
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s. Wgt. 6 lbs.  
Base: 4 x 4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

## ITEM 59. TYPE No. AW5

Primary Z: 12,500 ohms pp. Plus 39 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.3 db  
Primary L: 100 Hys. Leakage L: 150 mH  
Freq. Resp: +/- 1 db 30 cps to 15 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4" H. "S" is 2 1/2"  
Mntg: VII

## ITEM 60. TYPE No. AW6

Primary Z: 12,000 ohms pp. Plus 33 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.6 db  
Primary L: 100 Hys. Leakage L: 140 mH  
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s. Wgt. 6 lbs.  
Base: 4 x 4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

## ITEM 61. TYPE No. AW7

Primary Z: 12,000 ohms pp. Plus 33 db  
Secondary Z: 8 ohms or 2 ohms  
Insertion Loss: 0.6 db  
Primary L: 100 Hys. Leakage L: 140 mH  
Freq. Resp: +/- 1 db 30 cps to 10 Kc/s. Wgt. 6 lbs.  
Base: 4 x 4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

## ITEM 62. TYPE No. AW8

Primary Z: 1500 ohms pp. Plus 37 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.6 db  
Primary L: 35 Hys. Leakage L: 28 mH  
Freq. Resp: +/- 1 db 30 cps to 12 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4 1/4" H. "S" is 2 1/2"  
Mntg: VII

## ITEM 63. TYPE No. AW9

Primary Z: 5000 ohms pp. Plus 37 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.6 db  
Primary L: 75 Hys. Leakage L: 85 mH  
Freq. Resp: +/- 1 db 30 cps to 10 Kc/s. Wgt. 7 lbs.  
Base: 4 x 4 1/4 x 4 1/4" H. "S" is 1 1/2"  
Mntg: VII

## ITEM 64. TYPE No. AW10

Primary Z: 10,000 ohms pp. Plus 39 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.3 db  
Primary L: 80 Hys. Leakage L: 100 mH  
Freq. Resp: +/- 1 db 30 cps to 16 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4 1/4" H. "S" is 2 1/2"  
Mntg: VII

## ITEM 65. TYPE No. AW11

Primary Z: 10,000 ohms pp. Plus 39 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.3 db  
Primary L: 80 Hys. Leakage L: 100 mH  
Freq. Resp: +/- 1 db 30 cps to 16 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4 1/4" H. "S" is 2 1/2"  
Mntg: VII

## ITEM 66. TYPE No. AW12

Primary Z: 10,000 ohms pp. Plus 39 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.3 db  
Primary L: 80 Hys. Leakage L: 100 mH  
Freq. Resp: +/- 1 db 30 cps to 16 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4 1/4" H. "S" is 2 1/2"  
Mntg: VII

## ITEM 67. TYPE No. AW13

Primary Z: 10,000 ohms pp. Plus 39 db  
Secondary Z: 500 ohms and 125 ohms  
Insertion Loss: 0.3 db  
Primary L: 80 Hys. Leakage L: 100 mH  
Freq. Resp: +/- 1 db 30 cps to 16 Kc/s. Wgt. 9 lbs.  
Base: 4 x 4 1/2 x 4 1/4" H. "S" is 2 1/2"  
Mntg: VII

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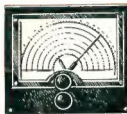
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